MAPS

Successful RCS Strategies for the Mid-1980s

INPUT

SUCCESSFUL RCS STRATEGIES FOR THE MID-1980s

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SUCCESSFUL RCS STRATEGIES FOR THE 1980s

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I INTRODUCTION

A. REPORT SCOPE

- During the early 1980s a series of technological and economic changes occurred; all of the changes had a significant impact on RCS vendors. Adjusting to these changes, minimizing their negative impact, and taking advantage of positive influences present a major challenge to the management of RCS vendor companies during the remainder of the decade.

- The purpose of this report is to identify and quantify these various changes and to assist the management of RCS companies in developing a successful strategy, or strategies, for the late 1980s.

- Several key questions are addressed:

  - What is happening to existing (or traditional) RCS products and strategies?

    . Which ones continue to be successful?

    . Which ones no longer appear to be successful?

  - What products and services are existing and potential RCS users expecting from RCS vendors? Are these expectations changing?

- What strategies for the future can be developed and implemented by RCS vendors that will enhance both revenues and profits?

- Although this report is addressed specifically to the management of RCS companies, it will be of value also to managers of computer hardware and software vendors. The changing nature of the computer industry marketplace dictates that a report such as this encompass a broad rather than a narrow view of the RCS industry.

- Appendix B contains a list of relevant, recent INPUT reports.

B. METHODOLOGY

- Background information for this report was obtained from a variety of sources.

  - Previous INPUT reports were reviewed, and relevant information was extracted and utilized.

  - Relevant data, gathered in other ongoing INPUT projects, was also used in developing information incorporated into this report.

  - A series of in-depth interviews with key managers of RCS vendor companies was held.

- As existing RCS strategies were identified and future recommended strategies were developed, these concepts were reviewed by individuals who are now, or have been, in senior management positions with RCS vendors.

- The report itself is the result of assessing and combining information gathered from these various sources.

C. BACKGROUND

- This report is one of a series of reports that are being developed within the scope of INPUT's Market Analysis and Planning Service for the Information Services Industry (MAPS).

- The other reports in this series are entitled:

  - On-Line Data Base Markets, 1984-1989.

  - Strategies for New Telecommunications Opportunities.

  - Personal Computer-to-Mainframe Market Opportunities.

  - Systems versus Services for Small Organizations: New Decision Criteria.

D. REPORT ORGANIZATION

- The remainder of this report is organized as follows:

  - Chapter II is the Executive Summary. This chapter is in presentation format; that is, the right-hand pages are a series of formatted displays suitable for presentation purposes. The left-hand pages contain the relevant text for such a presentation.

- Chapter III describes a number of technological developments that recently occurred and have had a direct, significant impact on the remote computer services market.

- Chapter IV examines the various changes that are occurring as RCS vendors adjust to changes in technology and market expectations. This chapter also emphasizes the impact of newly defined RCS services on existing RCS vendor companies.

- Chapter V explores the changing expectations of users of remote computer services. Particular attention is paid to the impact of the personal computer on these users.

- Chapter VI reports on strategies that are currently being adopted by RCS vendors to meet changing market conditions.

- Chapter VII contains a series of recommendations for consideration by RCS managers. These general recommendations have been developed to assist management in creating specific strategic corporate plans.

II EXECUTIVE SUMMARY

- Note: this executive summary is designed in a presentation format in order to:

  - Help the busy reader quickly review key research findings.

  - Provide a ready-to-go executive presentation, complete with a script, to facilitate group communications.

- The key points of the entire report are summarized in Exhibit II-1 through II-5. On the left-hand page facing each exhibit is a script explaining its contents.

A. SUCCESSFUL RCS STRATEGIES FOR THE MID-1980s

- This report was produced as part of INPUT's Market Analysis and Planning Service (MAPS).

- The RCS market and the RCS vendors are undergoing a variety of changes brought about by:

  - New technology.

  - New user attitudes.

  - New competitors.

- Previous RCS vendor business strategies are obsolete. The management of these companies must develop newer strategies so that they can continue to be successful as changes occur.

- This report focuses on:

  - What is causing these changes to occur.

  - What RCS vendor companies are already doing to meet the challenge of these changes.

  - A series of recommended strategies to:

    . Overcome the negative effect of these changes.

    . Capitalize on the positive effect of these changes.

- The remainder of this presentation will provide a summary and highlights of the overall report.

EXHIBIT II-1

SUCCESSFUL RCS STRATEGIES FOR THE MID-1980s

- **RCS Industry is Being Subjected to Changes in:**
  - **Technology**
  - **User Attitudes**
  - **Competitors**

- **RCS Managers Must Develop New Corporate Strategies to:**
  - **Overcome Negative Effect of Changes**
  - **Take Advantage of Positive Effect of Changes**

B. RCS INDUSTRY SUBJECT TO INTENSE CHANGES

- Microcomputer revenue will claim an increasing share of RCS revenue. In 1983 the share was 3%; by 1988 the share will be 25%.

- Non-RCS firms are now providing RCS services. Such firms include IBM, AT&T, Dun & Bradstreet, and CPA firms.

- User expectations are at a high level and are increasing, due to PC advertising, the end user's growing influence in RCS-buying decisions, and user demand for full service.

- Some traditional RCS services, such as timesharing utility services, engineering/scientific applications, and cross-industry applications, are no longer growing rapidly.

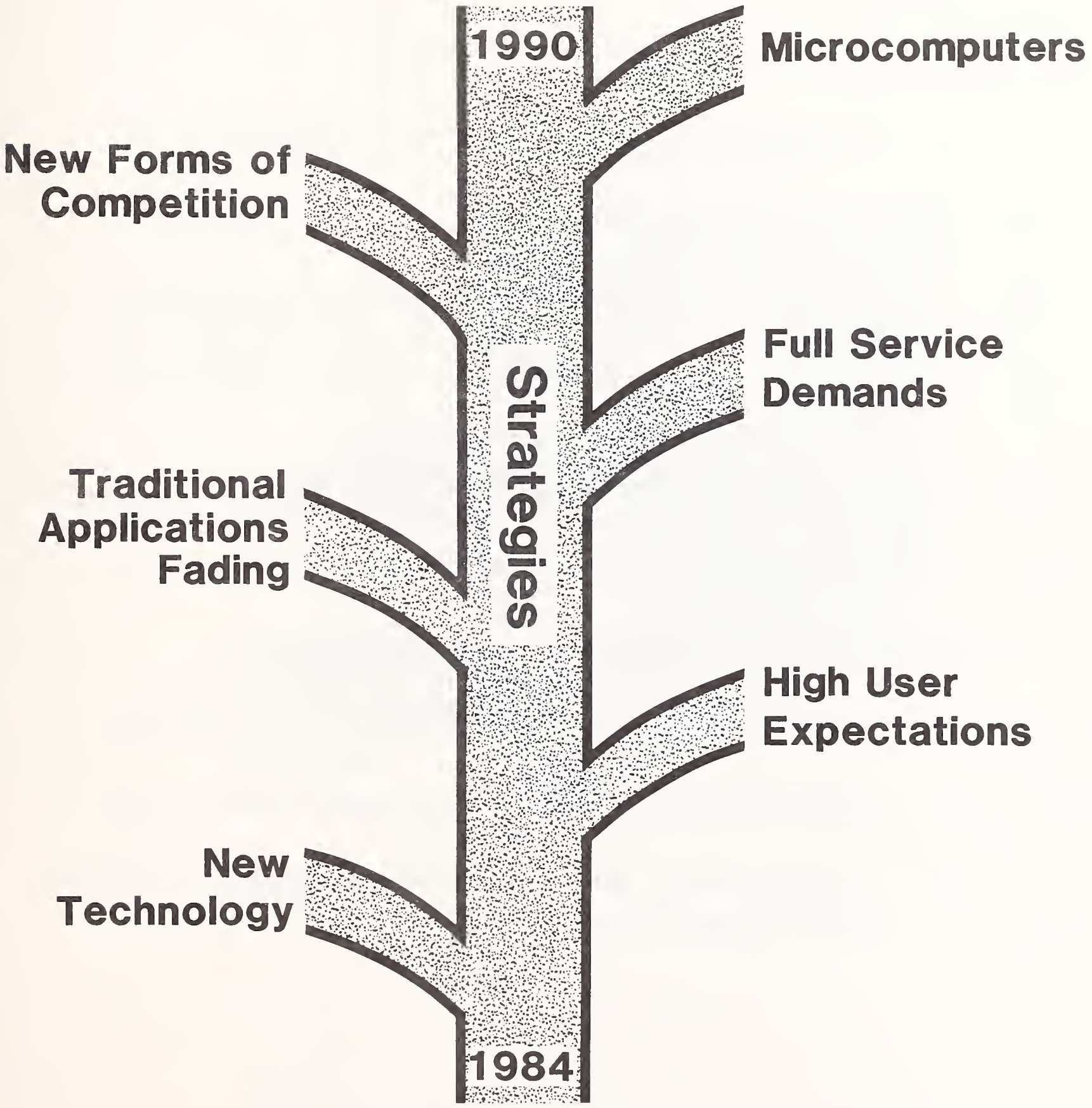
- New technologies, such as personal computers, software development and sales, and hardware sold on a remarketer basis, will have to be adopted.

- Users are purchasing micro- and mini-based systems for the same reasons they purchase RCS services - low cost, local control, and local computing capability.

- The RCS vendor must find a way to promote its services as being different and better.

EXHIBIT II-2

RCS INDUSTRY SUBJECT TO INTENSE CHANGES

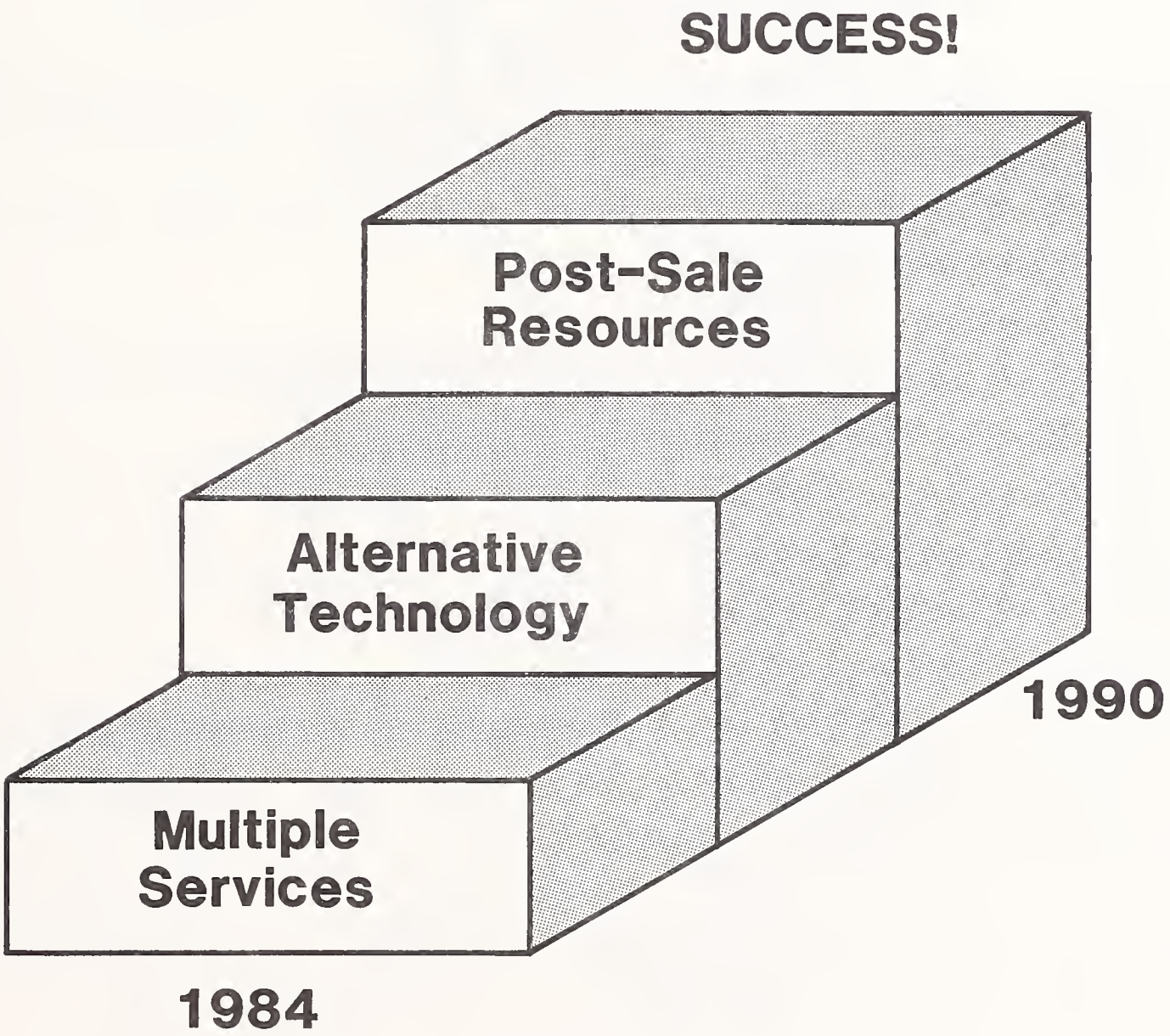


C. EMERGING RCS STRATEGIES

- Vendors are emphasizing a "full service" approach to selected industry segments:
  - As a means of competing with PC vendors.
  - As a means of deriving more revenue from existing clients.
  - To offset a slowdown in the growth of cross-industry applications.
- In the context of being a full-service vendor, a number of RCS companies are providing alternative means of delivering the same application - that is, a combination of network services, standalone PCs/minis, mainframe software, and micro-to-mainframe links.
- In order to solidify a reputation as full-service vendors, RCS companies are finding the user expects a greater level of post-sales support, including field support staff, training and education, hotline services, and documentation.
- A professional client support group is becoming more common.
  - Members of this group may have had relevant industry experience.
  - Members can relate to the clients' requirements and expectations.
  - The group can be a source of renewed generation, providing follow-on sales and billable services.

EXHIBIT II-3

EMERGING RCS STRATEGIES

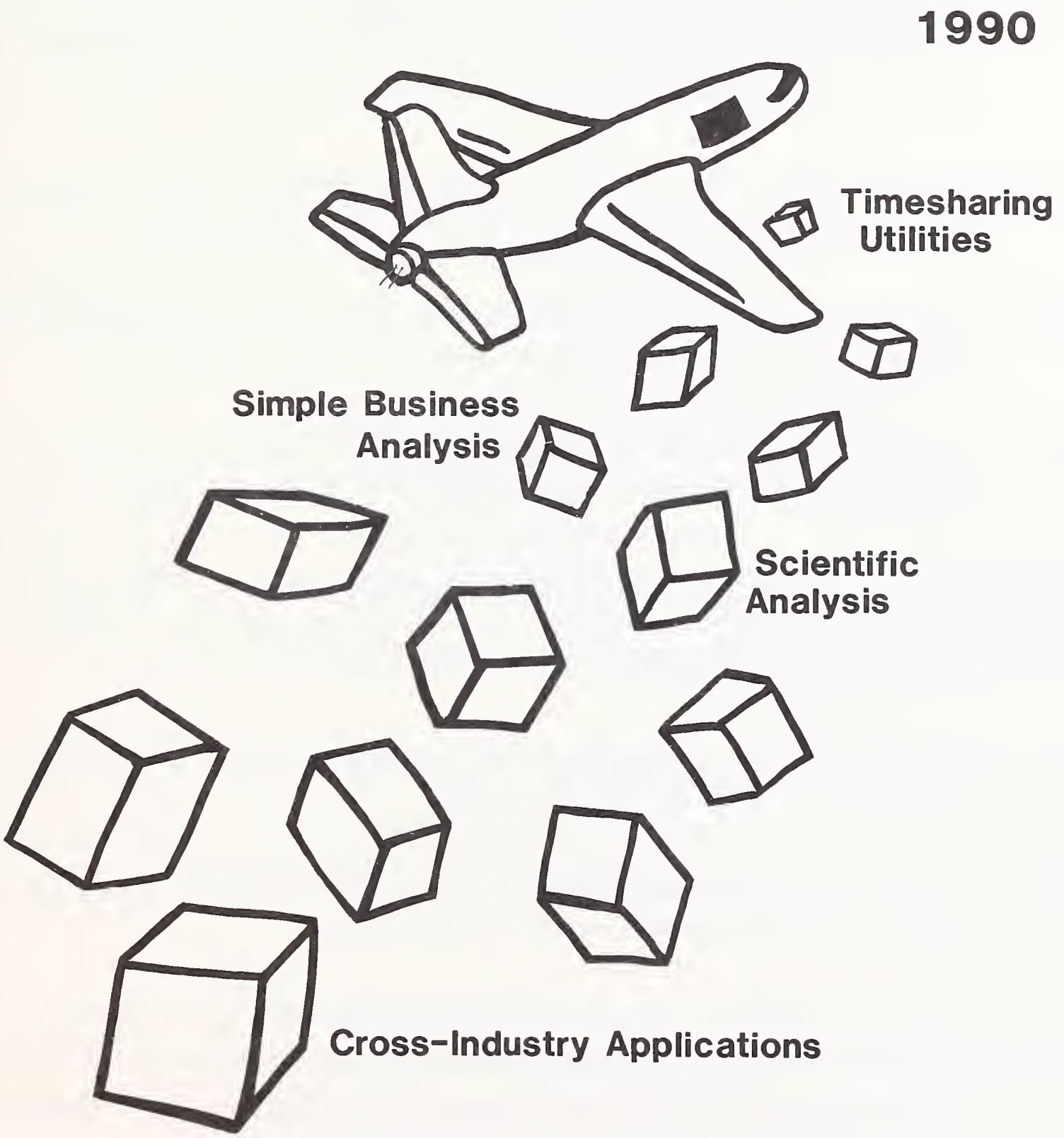


D. DE-EMPHASIZED STRATEGIES OF RCS VENDORS

- RCS vendors are de-emphasizing certain applications that previously were primary revenue generators, for example:
  - ADP is de-emphasizing batch payroll and accounting.
  - GEISCO is de-emphasizing scientific/engineering analysis.
  - MCAUTO/Tymshare is de-emphasizing utility timesharing applications.
- These applications may well continue to provide significant revenue; it is revenue growth that is lacking.
- Quite possibly, these applications will continue to be viable well into the future.
  - Through existing delivery modes.
  - Through new delivery modes, primarily the PC.

EXHIBIT II-4

DE-EMPHASIZED STRATEGIES OF RCS VENDORS



E. RECOMMENDED STRATEGIES

- User expectations have changed significantly, owing to PC advertising.

- RCS management has frequently presumed to know the needs of users. These presumptions were often incorrect. Misunderstanding the user today can be even more detrimental than it was in the past, since users can now migrate to alternatives - basically to a PC-based system.

- The RCS vendor cannot afford to ignore the personal computer, which has already replaced, at least in part, a number of RCS applications.

- It is becoming difficult for the user to distinguish pure PC-based systems from RCS terminals. A blending of the technology is rapidly taking place.

- The full-service concept combined with carefully selected market segments is the single most important strategy available to RCS management.

- Post-sales support activities have often been ignored in favor of sales or development activities. However, the post-sales area, if properly structured, can significantly enhance the financial results for an RCS vendor.

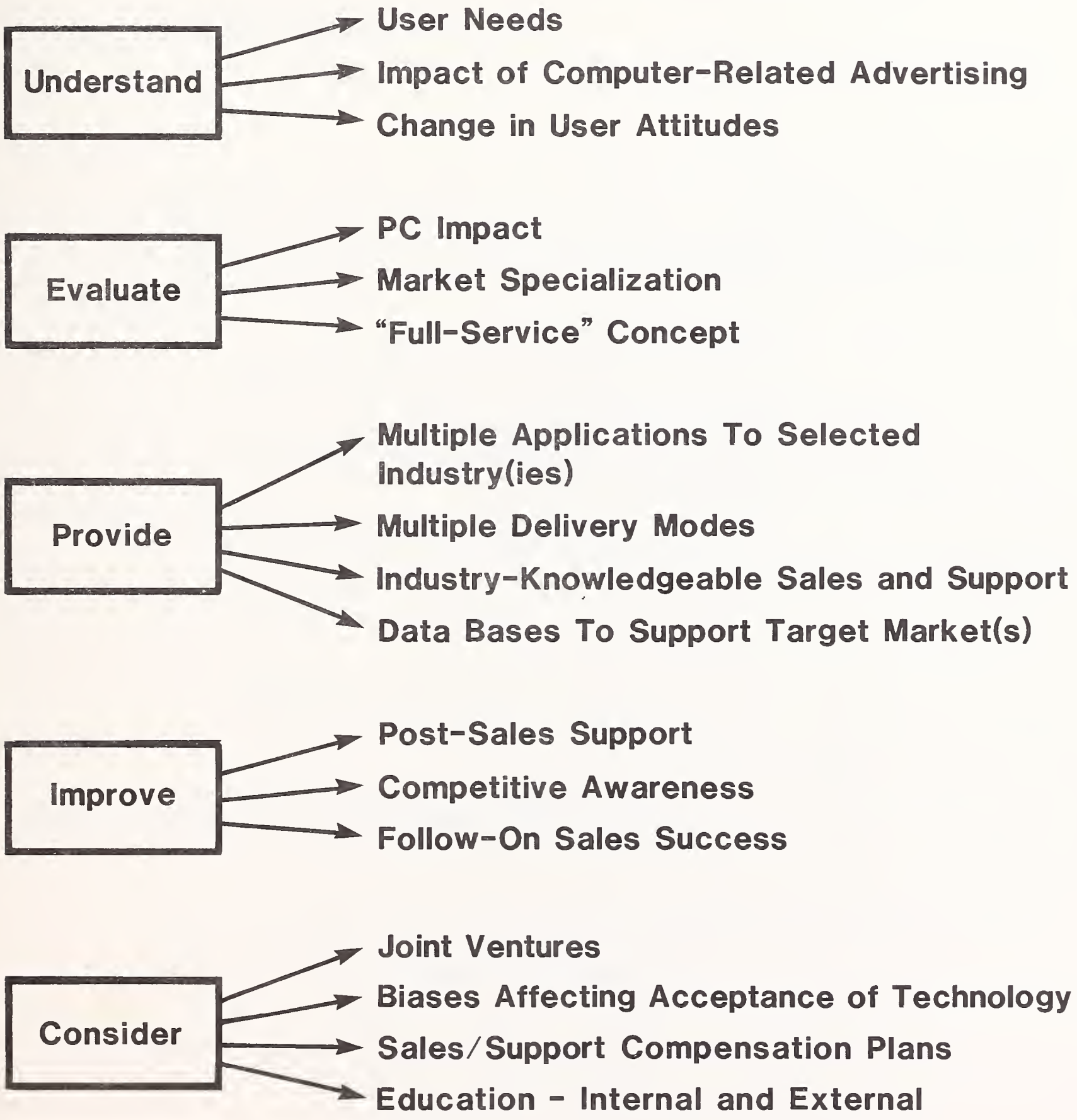
- The combination of transactional RCS services with access to a large-scale data base is a viable RCS vendor strategy.

- The successful implementation of any of these strategies depends on the support of middle managers and other key personnel.

- The most significant challenge for RCS management is the development of a new corporate mind-set. RCS managers must take into account sales compensation programs, involve middle management in the planning process, and ensure that the entire staff is aware of management's objectives.

EXHIBIT II-5

RECOMMENDED STRATEGIES



III EVOLVING TECHNOLOGY

- This chapter describes the current and anticipated changes in hardware and software technology and assesses the impact of these changes on the RCS vendor. Five different but highly related technologies are addressed. They are:

  - Personal computers.

  - Value-added networks (VANs).

  - Local-area networks (LANs).

  - Informational data bases.

  - Intelligent workstations.

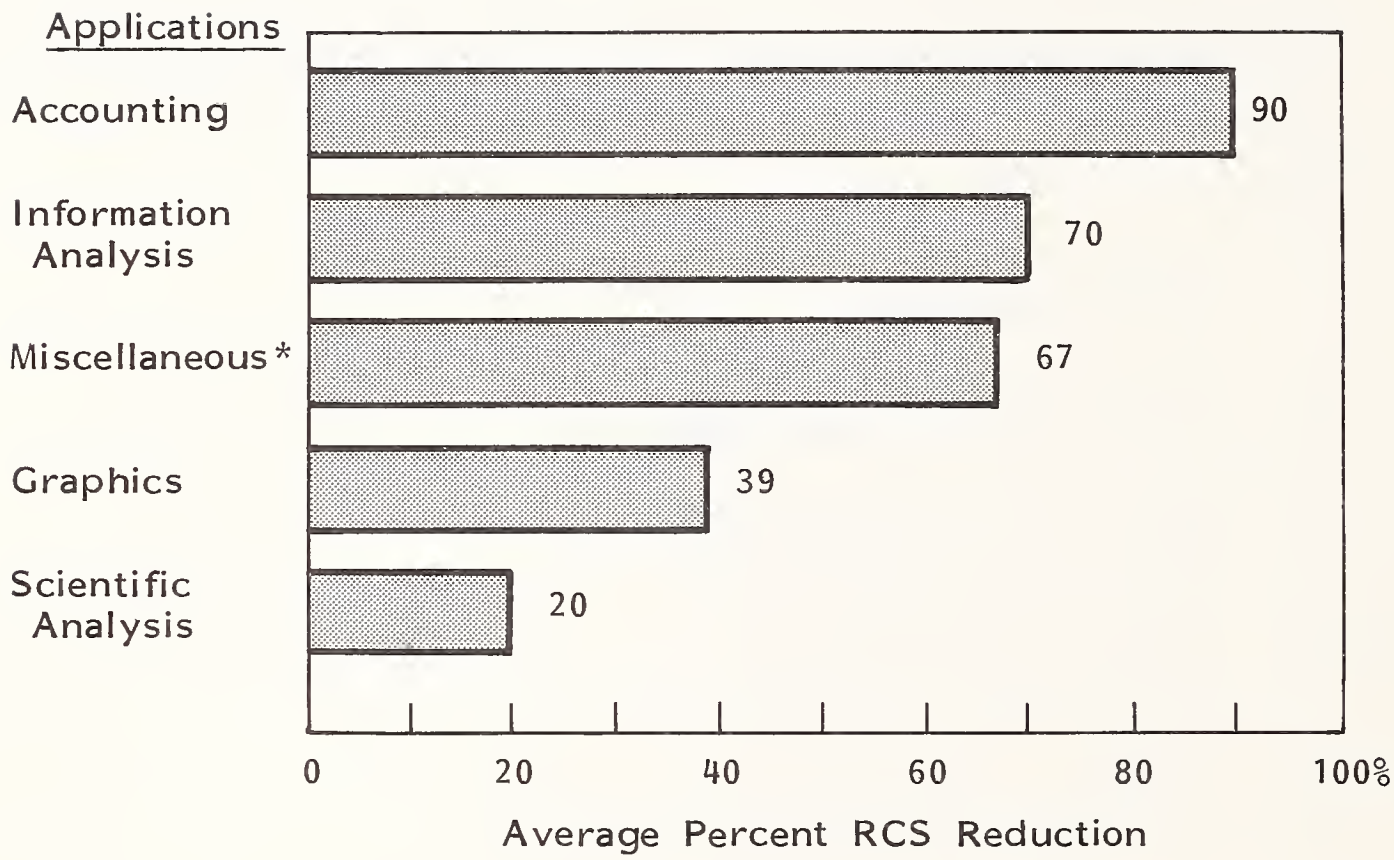
A. THE IMPACT OF PERSONAL COMPUTERS

- RCS revenues are already being adversely affected by the installation of PCs within RCS user firms, as shown in Exhibit III-1.

- Those RCS applications that have been most severely impacted are:

EXHIBIT III-1

RCS APPLICATIONS DISPLACED BY PCs



* Not Otherwise Categorized

  - Financial modeling.

  - Budgeting.

  - Graphics.

- To date, PCs have primarily impacted analytical applications.

- In the future, PCs are expected to impact RCS transactional applications as well as analytical applications.

- By 1988, PCs are forecasted to seriously erode revenues derived from the following types of RCS applications:

  - Accounting and related business applications.

  - Data base applications.

  - Project management.

- As a means of gauging the impact of PC technology:

  - 4,000,000 PCs were installed in 1983.

  - 35,000,000 PCs are forecasted to be installed by 1988.

- It is also forecasted that by 1986 the 32-bit microcomputer with one-megabyte memory and fifty-megabyte disc storage will be available and selling for less than $10,000.

- The use of dedicated terminals for RCS applications is rapidly disappearing. RCS users expect to use PCs as standalone computers and also as terminals for RCS applications.

- Both AT&T and IBM have recently announced new products utilizing PC technology that will allow the interchange of information between multiple users and mainframe computers.

  - AT&T has released its 3-B hardware series, apparently in direct competition with DEC's VAX system. Furthermore, AT&T is expected to announce a PC series in mid-1984. This equipment has been developed jointly by AT&T and Olivetti.

  - IBM announced a series of products (hardware and software) that are designed to integrate to low-end computer systems. Of special importance is the exposion of the PROFS software to enable the combination of a variety of hardware elements into a series of workstations. A subsequent announcement of a full LAN system is expected subsequently.

- Although today most PC-RCS software is resident in the PC itself, it is expected that future software will be downloaded from a mainframe to the PC. It is expected that, before the end of the decade, the majority of RCS software will be made available to users through downloading. Both MSA and McCormack & Dodge (Dun & Bradstreet) have announced such products.

- It is further forecasted that RCS users utilizing PCs as intelligent terminals will dial up the relevant software for downloading purposes and pay for the use of this software on a pay-as-you-go, or rental basis.

- PC vendors are now focusing on applications software - much more so than in the past. Exhibit III-2 contains the results of a previous survey of RCS vendors. The shift in favor of industry-specific applications software can be seen in the reported results, as well as in the planned shift in favor of large and small companies.

EXHIBIT III-2

MARKETS FOR PC/RCS OFFERINGS

SURVEYED	PRODUCTS	
	EXISTING*	PLANNED†
1. Industries Targeted		
Cross-Industry	83%	48%
Industry-Specific	17	52
2. Company Size Targeted		
Over $500 Million	17	50
$100-500 Million	33	0
Under $100 Million	0	25
Combinations of Above Sizes	50	25

* Data available on 6 existing products

† Data available on 31 planned products

- Exhibit III-3 presents the forecasted growth in PC-based RCS revenues, comparing 1983 with 1988. These revenues are forecasted to increase from $200 million in 1983 to $4.8 billion in 1988. As a supplementary issue this exhibit also portrays the growth in pure PC revenues, from $5.2 billion in 1983 to $18.4 billion in 1988.

B. VALUE-ADDED NETWORKS (VANs)

- A previous INPUT study, published in December 1982, reported that almost 100% of surveyed RCS firms used VANs in supplying their services. The report also indicated that RCS companies (as well as users) were anticipating additional applications utilizing VANs.

- Although much of this anticipated increase in the use of VANs by RCS companies has already occurred, VANs, as separate entities, have been obscured by the growth in on-line data bases, PC/RCS integration, and the emergence of local area networks.

- RCS vendors have come to expect that they will be able to select from among several VANs, each one offering a unique combination of technical and economic characteristics. That is, in a deregulated environment, VANs have evolved into a commodity service for RCS vendors and others.

- The emergence of the dominant position of the IBM PC, together with the already dominant position of IBM mainframes, has set a technological standard for VANs. Thus, as with any utility, pricing becomes the basic selection criteria as RCS firms choose among VAN services. These trends will continue to erode the absolute and relative costs of VANs - one cost component of an RCS offering.

EXHIBIT III-3

PC-BASED RCS MARKET FORECAST
(Revenues in $ Billions)

REVENUE SOURCE	1983	1988
1. RCS	$5.2	$18.4
2. PC-Based RCS	0.2	4.8
3. PC Hardware and Software (Standalone)	4.7	17.2

- In general, the distinction between an RCS vendor, a value-added network vendor, and the vendor of an on-line (or informational) data base is becoming more difficult to discern. An argument can be made that in order to be a successful RCS vendor, the RCS company must encompass all three components--the transactional service, the network, and the large-scale data base.

C. LOCAL AREA NETWORKS (LANs)

- Elsewhere in this report, the merging of hardware, software, and services, is emphasized all in the context of the RCS vendor. It is in this context that the RCS vendor should be interested in the development of local area networks.

- In direct contrast to VANs, the evolution of LANs is still in its infancy.

  - Standards for LAN hardware and interfaces among these hardware components have not yet evolved.

  - LAN software is mainly nonstandard and in some cases nonexistent. Thus, LAN users are frequently required to develop some portion of their LAN software by using their own resources.

- The lack of standards for LAN installations is causing a reluctance on the part of potential LAN users to order and install hardware. Both LAN users and LAN vendors seem to be awaiting the formal or de facto issuance of LAN standards by either IBM, AT&T, or both.

- Some early users of LAN systems have found that the costs related to a fully-installed system were far in excess of planned expenditures. These unanticipated costs occurred in one or more of the following areas:

- Customer software to support the LAN hardware.

- Installation costs - in many cases related to building codes or union work rules.

- Relocation or reconfiguration after the initial installation of the hardware.

- In a previous INPUT report (Local Area Networks: Directions and Opportunities, December 1983) addressed to potential users of LANs, the recommendation was made to defer the decision to install LANs, at least until mid-1985. This would allow time for:

  - The establishment of standards.

  - The emergence of leading hardware vendors.

  - Further technological development of:

    . Software.

    . Communication equipment for interconnect purposes.

D. INFORMATIONAL DATA BASES

- Informational data base services represent a high-growth opportunity and are already replacing utility-type timesharing services.

- The convergence of a number of technologies is adding to the growth potential for informational data base services.

- Personal computers are giving users greater flexibility in retrieving and manipulating data from informational data bases.

- Dedicated terminals are being replaced by general-purpose terminals (in many cases, personal computers), thus allowing a user to access multiple data bases from a single terminal.

- VANs and LANs are providing a means to access and route retrieved data among a variety of users on a more cost-justifiable basis.

- The availability of DBMS software and fourth-generation programming languages is providing the user of data-base services greater flexibility in accessing informational data bases.

- Firms that have not previously been considered remote computer service companies are, in fact, becoming RCS service companies as they provide users with access to their own proprietary data bases. Such firms are:

  - Dun & Bradstreet.

  - McGraw-Hill.

  - Equifax.

- There is a large potential market for informational data bases evolving in the consumer sector, as opposed to the industrial sector.

  - The proliferation of personal computers in the home has opened a potential new market sector for vendors of informational data bases.

  - To date, this market sector remains embryonic and undefined.

- The informational data base market (for commercial users) has evolved into two fundamental market areas:

  - Industry-specific.

  - Cross-industry.

- This segmentation parallels that which occurred previously in the more traditional market for remote computer services.

E. INTEGRATED SYSTEMS

- The integrated systems market was growing rapidly prior to the impact of the personal computer. Much of this earlier growth was in the area of CAD/CAM systems.

- The advent of the personal computer has served to further accelerate the growth of integrated systems. Much of this more recent growth is exclusive of CAD/CAM systems.

- Although the majority of integrated systems are developed by third-party OEM system integrators, more and more of these systems are being produced and distributed by the hardware manufacturers themselves.

- With the growth of the integrated systems market, the intelligent terminals used to access data bases will no longer be separate devices but will be these same integrated systems.

- The marketing and sales aspect of the integrated systems business will change dramatically as the technology changes.

- In selling to the consumer market, the vendor will, of necessity, have to adopt mass-merchandising and consumer-oriented distribution techniques (Using retail stores, direct mail, and wholesalers).

- Even in the commercial marketplace, consumer-type sales and distribution techniques are becoming necessary because of the low (and decreasing) unit price of the integrated system.

- As has occurred previously in other segments of the computer services market, the market for industry-specific integrated system applications is already larger - and is forecasted to grow more rapidly - than the market for cross-industry applications.

- There are significant variations in the forecasted market for integrated systems. These variations are dependent on the specific market sector.

- The market sectors that are expected to enjoy the greatest growth are:

  - Discrete manufacturing (including CAD/CAM systems).

  - Banking and finance.

  - Professional services.

IV COMPETITIVE DEVELOPMENTS

A. GENERAL DEVELOPMENTS

- The most significant competitive development in the remote computer service industry is the rapid change in the type of firm that is able to provide remote computer services. In the past, an RCS vendor was easy to define and identify. Although the definition of remote computer services themselves has remained fairly constant, the firms providing these services are changing and will continue to change.

- In the past, a firm devoted to providing computer services rarely derived a significant amount of its revenues from other sources.

- Currently, firms that formerly were not involved in supplying remote computer services are now becoming heavily involved in this business while still maintaining their traditional business. Such firms are:

  - Computer hardware manufacturers.

  - Software vendors.

  - Financial service companies.

  - Professional service companies.

  - Publishing companies.

- The personal computer (and the increasing standardization of microcomputer technology by IBM) is the single most influential technological development affecting RCS vendors. Most RCS vendors have already incorporated microcomputer technology into one or more of their RCS product offerings.

- Both RCS vendors and software vendors have become hardware remarketers. It is reported, for example, that Informatics is currently generating almost 10% of its total revenues by remarketing hardware packaged with Informatics software and services.

- Due to the rapid changes occurring in both the product and the technology associated with the RCS market, many RCS vendors are entering into joint ventures with other firms as a means of expanding their product offerings. Typically, these joint ventures occur between companies that bring together a product and a technology that, when combined, will find greater acceptance than either would on an individual basis. For example:

  - GEISCO/Wang - GEISCO will provide an electronic mail service to any user who has a Wang professional computer.

  - CDBC/InSci - This is a joint agreement linking together CDBC's payroll services and InSci's human resource services.

  - DRI/VisiCorp - McGraw-Hill's DRI announced an agreement with VisiCorp to provide VisiCorp to DRI users for the manipulation and display of the data extracted from the DRI data base.

B. THE CHANGING ROLE OF COMPUTER COMPANIES

- Several competitive developments have occurred and are creating a significant impact on the remote computer service market. Some of the more significant of these events are outlined below.

- AT&T - after divestiture - announced its ability and intent to delivery computer hardware that is potentially competitive with IBM, DEC, and others. As part of the same announcement, AT&T also stressed its role as a software developer.

- IBM, in a joint announcement with Comshare, revealed an agreement identifying Comshare as a "Complementary Marketing Organization." Under this agreement both the IBM and Comshare sales representatives will trade leads in situations where IBM's hardware and Comshare's decision support software (System W) might enhance the possibility of a sale of either product.

- IBM has formed a subsidiary company, IBM Information Network, which has enabled IBM to provide both communication and remote computer services to the marketplace. This company advertises capabilities that can be viewed as:

  - Value-added network (VAN) services.

  - Local area network (LAN) services.

  - Remote computer services (RCS).

- Dow Jones & Company has recently introduced its Dow-Phone service. Subscribers to this service can build a portfolio of financial information and access this portfolio through a touch-tone telephone. A voice-response output is currently received by the user. It is expected that this service will be expanded to include input and output through personal computers.

- MSA, through its previously acquired Peachtree Software, is now offering MSA Peach-Pak, enabling users to download financial software from a mainframe to a personal computer.

- MSA also announced Executive Access, which is designed to link mainframes and personal computers in a mode that provides the user with an in-house distributed decision support system. This is somewhat analogous to capabilities recently announced by IBM and AT&T.

- ADP has entered the hardware manufacturing business, producing microcomputers that utilize the REALITY operating system. This hardware is utilized in providing remote computer services through ADP's Dealer Services Division.

C. THE EMERGENCE OF NON-RCS VENDORS AS VENDORS OF RCS SERVICES

- Hardware manufacturers are entering the RCS market either with their own offerings or through joint ventures with other firms.

- Companies that are primarily publishers of financial information are finding that RCS technology enables them to distribute their products more efficiently.

- Software companies have not yet entered the RCS market in a significant way, but such a move is inevitable.

  - The PC-to-mainframe linkage is becoming more common.

  - Uploading and downloading of software is now taking place in the commercial marketplace.

  - Downloading software from a mainframe to a microcomputer and pricing it on a usage basis is occuring now and will become common.

- All of the above will form a new type of remote computer service - one that will probably be dominated either by software companies or by traditional RCS vendors.

- Some software companies have already changed their strategies (proactively or reactively) and have become system integrators or are capable of being system integrators), due to the influence of the microcomputer. These include:

  . MSA.

  . McCormack & Dodge.

  . Cullinet.

- The managements at software firms are already familiar with mainframe technology, microcomputer technology, and in certain cases data communications technology.

- A number of the large public software firms now enjoy the earnings multiples that would give them financial leverage for product expansion or for acquisitions.

- Conversely, providing remote computer services is a more demanding business than developing and selling software. Thus, in all probability, a software company would be well-advised to move into the RCS market through acquisition rather than through development.

D. JOINT VENTURES - RECEIVING MORE ATTENTION

- The variety of firms entering the computer service market, together with the expansion in the types of service available, makes it difficult for a single firm to offer these new services through its own resources.

- The joint venture approach has proven to be appealing because:

  - Development costs and time are reduced or eliminated.

  - Joint venture partners can be found that are not directly competitive.

  - An unsuccessful joint venture can be easily dissolved, unlike an unsuccessful acquisition.

- Some joint ventures can be established with the expectation that, if successful, an acquisition will follow. Some examples of recent joint ventures are:

  - IBM/Comshare.

  - CDBC/InSci.

  - AT&T/Olivetti.

- These joint ventures ar described in greater detail in Chapter VI.

V CHANGING USER EXPECTATIONS

A. THE IMPACT OF THE PERSONAL COMPUTER ON USER ATTITUDES AND EXPECTATIONS

- The personal computer has been the most heavily advertised and promoted product in the history of the computer industry.

- More advertising dollars have been spent on personal computers in the last three years than were spent on all remote computer services since their inception.

- Personal computer advertising has been directed at the businessperson in two ways - as a businessperson and as a consumer. Both advertising directions stress economy, user friendliness, ease of obtaining results, and individual control. This two-pronged approach reinforces the attitude that the users can gain control of their destinies.

- It is probable that contemporary advertising for personal computers has also affected user attitudes in other types of computer services. This is especially likely in those market segments where a personal computer offering is in direct competition with a traditional RCS offering.

- Extending this view, it is highly likely that the expectation level created by PC advertising has also created a similar level of expectation in the minds of

RCS users in general. Assuming this to be so, the RCS vendor is obligated to provide a high level of service, especially when competing directly with a PC-based service offering.

- In a recent INPUT personal computer study (Personal Computer Opportunities for Remote Computer Services Vendors, June, 1983), the reasons users gave for purchasing personal computers are the same reasons users have previously cited for purchasing remote computer services. These are:

  - Low cost.

  - Local control.

  - Local computing capability.

- Further, 48% of all RCS users reported declines in their RCS expenditures, and of those reporting declines in RCS expenditures, 62% indicated the declines were due to an increased use of PCs.

B. USER EXPECTATIONS

1. THE END USER

- The end user's expectations can be summarized by a consumer advertising industry axiom, "People do not buy products, they buy results."

- Previously, RCS vendors sold many services through the user's data processing departments. In these cases, user expectations centered on technical features tempered by economic factors. Currently, the end user is most likely to be the primary RCS decision maker, supplemented by data processing personnel. Thus, his expectations are related more to results than to the features of the product itself.

- The user expects a service that will deliver results without any further involvement on the user's part, except in actual use of the system. That is, the user does not expect to have to make subsequent hardware or communication network decisions. It is expected that the RCS vendor will provide a true "turnkey" capability.

- Similarly, the user expects that training and education, when necessary, will be accomplished by the RCS vendor, with a minimum of disruption to the staff's work schedule.

- More and more, the user expects ongoing support from the RCS vendor in the form of:

  - Ongoing training, when required.

  - A "hotline" so questions can be answered and service difficulties reported.

  - Enhanced features on a continual basis.

- In the past, RCS vendors have not fully understood user needs. Exhibit V-1 illustrates how users and vendors rank the importance of various service features.

- In summary, the end user has been conditioned to expect results with minimal disruption and system knowledge. PC advertising has influenced the user as a businessperson and as a consumer; such advertising has contributed to the user's high level of expectation for continuing support. The mode of delivery of the service is becoming less and less important to the user.

EXHIBIT V-1

USER AND VENDOR RANKINGS OF SERVICE FEATURES

FEATURE	USER RANKING*	VENDOR RANKING*
1. Vendor Maintenance	1	5
2. Communications with Remote Locations	2	2
3. Communications within Local Organization	3	4
4. High Level of Processing Capacity	4	1
5. Inter-Departmental Communications	5	3

* 1 = High, 5 = Low

2. DATA PROCESSING STAFF

- In most large user organizations, the data processing staff now views remote computer services as supplementary to in-house efforts. This is a shift, in part, from previous attitudes that resulted in viewing the RCS vendor as a competitor.

- The technical data processing personnel in the user organization expect to be involved, together with the end user, in major decisions concerning RCS. The need for corporate-wide compatibility is the most common reason for this involvement. Interest in monitoring the corporate-wide data processing budgets is a secondary reason for such involvement.

- When viewing RCS products, the data processing staff expects that the end user will evaluate the functional adequacy of the system. However, the technical evaluation performed by the data processing staff will include a review of:

  - Any hardware lease or purchase commitments.

  - The impact of the RCS on the internal data processing operation (personnel or hardware).

  - Overall strategic data processing plans in the user organization.

C. THE SERVICE CONGLOMERATE

- Users, in particular end users, have become more demanding in their evaluation of RCS offerings. In essence, their level of expectation is such that the degree of compromise the user is willing to make to adapt to the service has been greatly reduced.

- The rapidity of change in technology and in the economic considerations related to new technologies has reduced the expected life of any RCS product or service. This changing level of expectation can be a very positive factor for the RCS vendor. The expectation of renting or leasing compute capability is becoming more appealing than purchasing a capability that may soon be technically or economically obsolete.

- Users expect each RCS vendor to offer a variety of technologies from which to select the most appropriate type of service for their particular needs. Just as financial service companies have become financial conglomerates, it is expected that successful RCS vendors will become service conglomerates. As a service conglomerate, the RCS vendor will be able to provide a means of meeting all of a user's information requirements. The distinctions that now exist among software vendors, service vendors, and hardware manufacturers all become unimportant, especially from a user's perspective.

- The computer service conglomerate will be discussed in greater detail in Chapter VII, "Recommended Strategies for RCS Management."

VI EMERGING RCS STRATEGIES

A. THE EROSION OF THE DISTINCTION AMONG HARDWARE, SOFTWARE, AND SERVICE VENDORS

- It is becoming increasingly difficult to categorize computer industry companies into any one of the three traditional industry categories:
  - Hardware manufacturers.
  - Software vendors.
  - Computer service companies.
- As long ago as 1980 (prior to the full impact of the personal computer), the ADAPSO member survey, performed by INPUT, indicated that 50% of the RCS firms involved in the survey were bundling hardware in their product offerings.
- It is anticipated that the 1984 ADAPSO survey will indicate that virtually all major RCS companies are now bundling (including hardware) in their product offerings.
- Most hardware manufacturers (mainframe, mini-, and microcomputer) are also software vendors, although many manufacturers do not yet view themselves as such.

- Recently, IBM created a separate business unit to develop and market both applications and systems software.

- A number of firms who, in the past, were solely software or service vendors, are now providing both services and software. In most cases, these two product lines are viewed as being complementary, rather than competitive. Furthermore, since hardware is bundled into the service offering, a single company can be considered a vendor of hardware, software, and services. (a service conglomerate). Examples of such companies are:

  - GEISCO.

  - BCS.

  - Informatics.

- RCS companies are seeing their traditional markets eroded, particularly by personal computer installations. Predictably, most RCS vendors have chosen to include PCs in their offerings, as standalone processors, as intelligent terminals, or as both.

- RCS vendors increasingly are moving away from their previous policy of letting the user select terminal hardware. RCS vendors are now acting as hardware OEM and in certain cases are putting their own logos on terminals. Furthermore, it is expected that RCS vendors will increasingly begin to assemble their own terminal equipment - thus, in effect, becoming hardware manufacturers. Examples of such companies are:

  - GEISCO.

  - ADP.

  - MCAUTO.

B. THE EMERGENCE OF THE FULL-SERVICE RCS VENDOR

- Although there still are numerous cross-industry RCS products and vendors, the trend is for RCS vendors to provide industry-specific services. (However, a single vendor can effectively service multiple industry sectors).

- As industry specialization becomes more prevalent, the RCS vendor will find it advantageous to become a full-service vendor for each specific industry that it services.

  - GEISCO.

  - BCS.

  - Informatics.

- As RCS firms emphasize industry-specific applications, users will view them as single-source vendors. Both vendor and the user can benefit from this stronger business relationship.

- As users demand and receive greater levels of client service, full service RCS firms will be forced to devote a greater percentage of revenue dollars to post-sales (client service) functions. In this context, two factors will cause RCS vendors to consider establishing professional service organizations within their companies:

  - The skills necessary to effectively support users will require at least some client service personnel to have professional backgrounds (e.g., finance, auditing, medical).

  - To offset higher client service costs, RCS vendors will attempt to bill customers for these highly skilled and highly paid personnel on a per diem (or other) basis, at least for some of the services.

- If there is a perceived value provided, users will agree to pay the RCS vendor for these professional services, over and above the normal RCS service charges.

- Most significantly, a number of companies that have not been categorized as RCS vendors are now beginning to compete directly with traditional RCS firms.

  - These firms enter the RCS market by capitalizing on their proprietary informational data bases.

  - Previously, these firms tended to sell access to the data base through RCS (timesharing) companies. Increasingly, however, these firms are bypassing (or acquiring) the RCS company and are selling directly to the end user, thus becoming an RCS vendor themselves. For example:

  - Dun & Bradstreet.

  - McGraw-Hill.

  - Dow Jones & Company.

- Public accounting firms are generating an increasingly large percentage of revenues from developing and selling software and providing data processing consulting services.

  - Frequently, the software was developed as a by-product of a custom consulting assignment.

  - The software is most frequently developed for a PC. Thus, the professional service firm is able to package the hardware and software (system integration) and sell the integrated system to an end user.

- As stated earlier in this report, the personal computer represents the single most significant impact on the RCS vendor since the migration from batch services to on-line services. Although the transition from batch to on-line took 10-12 years to fully evolve, the impact of the PC occurred in only two to three years.

C. STRATEGIES EMPHASIZED BY RCS COMPANIES

- RCS companies are providing multiple services for a specific market sector.

- They are providing the user several means of achieving the same basic results, including:

  - Remote service.

  - Mainframe software for internal use.

  - System integration (software packaged together with a mini- or micro-computer and sold as an integrated system).

- There are many examples of companies that have made progress with the previously mentioned strategy. Interestingly, these firms are not necessarily RCS vendors in the traditional sense. They include:

  - MSA/Peachtree, offering:

    . Mainframe software.

    . Micro software.

- Dun & Bradstreet/NCSS/McCormack & Dodge, offering:
  - . RCS services.
  - . Mainframe software.
  - . Micro software.
- Burroughs/SDC, offering:
  - . Hardware.
  - . Mainframe software.
  - . Integrated systems.

- The end user is being supported by a greater variety and higher quality of client services, including:
  - More frequent training and education - either for a fee or bundle-priced.
  - Hotline services.
  - Professionally educated client service personnel.

- The user is being relieved of all responsibility concerning system installation and operation.
  - The necessary hardware is bundled into the service.
  - All communication equipment is installed or leased.

- System terminal equipment is becoming multipurpose, providing:
  - System input and output.
  - Standalone microcomptuting capability.
  - Integration with local area networks to form decision support systems.
- Joint ventures are being used as a means of rapidly achieving full-service vendor status.
  - This reduces the time and risk involved in internal development.
  - The variety of services being demanded by the marketplace are beyond the expertise contained in a single firm.
  - A joint venture can easily be terminated if the venture is unsuccessful.
- The following new compensation programs are being developed for field sales forces:
  - New account sales commission plans.
  - Existing account sales commission plans.
  - Post-sales commission plans for sales support personnel.
  - Upgraded RCS sales compensation plans to compete with programs for:
    . Software.
    . Professional services.
    . Data base services.

- Total system maintenance responsibility is being accepted by the RCS vendor, relieving the user of any responsibility in the area of:

  - Hardware.

  - Communication facilities.

  - Software.

D. STRATEGIES DE-EMPHASIZED BY RCS COMPANIES

- Utility services (raw timesharing services) are being de-emphasized.

  - Commodity pricing has eroded profit margins.

  - PC-based applications have replaced many of these services.

- Scientific/engineering specializations were the original applications that allowed the creation of the commercial timesharing business. Although these applications are still viable, few (if any) major RCS vendors will continue to derive a majority of revenues from these applications in the future.

- Cross-industry applications are being de-emphasized in favor of industry-specific applications.

  - Certain firms (i.e., ADP, CDBC) are deeply involved, however, in providing cross-industry applications, and probably have no intention of abandoning these traditional markets in the foreseeable future, nor will they need to. However, these applications (payroll accounting) show relatively slow overall growth.

- These and other firms also provide industry-specific applications as a means of achieving revenue growth.

E. SPECIFIC EXAMPLES OF RCS STRATEGIES

- As of this date, the majority of the large RCS companies has adopted strategy changes to meet the challenges of new technology and shifting user expectations.

  - Although these strategy changes have often been announced in concept, in many cases the implementation of these strategies has been slowed by the impact of various business factors.

  - In Chapter VII of this report those factors that may impede strategy changes are identified and examined.

- The remainder of this section identifies some companies that have restructured themselves to better meet the needs of the changing RCS market. The companies selected for inclusion in this section represent either:

  - Traditional RCS vendors.

  - Computer companies that were not previously classified as RCS vendors but were part of the computer industry.

  - Companies that were not previously considered part of the computer industry in any way.

1. BOEING COMPUTER SERVICES (BCS)

- This company recently formed three separate business units:

- Information Network - the traditional timesharing (RCS) services, heavily oriented toward scientific and engineering applications.

- Software and Education - the formalization of two services that are generally considered ancillary to remote computer services.

- Major (or Federal) Systems - an industry-specific business unit (Federal Government) that focuses BCS resources on a market segment that historically has been important to BCS.

2. GENERAL ELECTRIC INFORMATION SYSTEMS COMPANY (GEISCO)

- This company formed a separate business unit to market software separate from GEISCO's timesharing services.

- GEISCO become pre-eminent in the bundling of hardware (IBM PCs) into its RCS offerings.

- It organized and promoted itself as a full-service vendor (service conglomerate) by offering:

  - Timesharing.

  - Software.

  - PCs - terminals and workstations.

  - Professional services.

3. AUTOMATIC DATA PROCESSING (ADP)

- ADP continues to generate a significant portion of its revenues from its original mainstays - batch payroll and accounting services. However, the long forecasted decline in the growth of these services is now occuring.

  - Although ADP has been involved in industry-specific RCS since the 1960s (with brokerage services) and also has long been involved in industry-specific services (dealer services and banking services), the company seems to be placing increased emphasis on industry-specific RCS.

  - A recent organizational re-alignment has resulted in the following:

    . Network Services Division (timesharing services) primarily a data utility, serving other ADP business units.

    . The consolidation of all banking industry services under one manager.

    . The consolidation of all automobile industry services under one manager.

- ADP has, in a number of cases, integrated PCs and computers into its service offerings where they are utilized as intelligent terminals and workstations.

- To date, ADP has not entered the software business; its revenues continue to be almost totally derived from processing services.

4. MCDONNELL DOUGLAS AUTOMATION (MCAUTO)

- MCAUTO has been a leader in evolving from its initial position as a spin-off, captive, timesharing company to what can now be viewed as nearly a service conglomerate.

- Given the recent acquisition of Tymshare by MCAUTO, the combined company revenues will approach the $1 billion mark.

- Noncaptive revenues will not exceed 25-30% of total revenues.

- MCAUTO is now able to provide the following types of services:

  - RCS.

  - Facilities management.

  - Software.

  - Integrated Systems.

  - Professional services.

  - VAN services.

- The company appears to be emphasizing vertical markets, such as:

  - Health care.

  - Manufacturing - CAD/CAM.

  - Science/engineering.

- MCAUTO is as close to meeting the definition of a service conglomerate as is any other firm in the industry.

- Although it is not a computer hardware manufacturer, it has become a hardware remarketer, with hardware-derived revenues generating an already significant portion of total service revenues.

5. DUN & BRADSTREET

- Dun & Bradstreet has, in effect, been supplying RCS services since the acquisition of NCSS in 1979.

- However, the company is now expanding its presence as a vendor of computer services more closely integrated with its primary business of providing financial information to a variety of industries.

- As a means of integrating its various informational and computer services, Dun & Bradstreet has formed the following business units:

  - Dun & Bradstreet Computer Services (formerly NCSS), offering:

    . Timesharing.

    . On-line transaction services.

  - TSI, providing systems software.

  - McCormack & Dodge, a recent acquisition offering applications software.

  - DUNS PLUS, providing informational data base services.

6. McGRAW-HILL, INC.

- McGraw-Hill has traditionally been a publisher of books and periodicals. Data Resources Inc. (DRI) was acquired by McGraw-Hill several years ago, and on-line access to the DRI data base was provided to users.

- However, more recently, McGraw-Hill appears to be positioning itself to integrate its information services with more extensive computer services and thus become a multiproduct RCS vendor.

- McGraw-Hill has, through acquisition and joint venture, formed the following business units:

  - DRI - on-line informational data bases offering data related primarily to the U.S. and foreign economies, together with forecasting and modeling capabilities.

  - Data-Pro - a research organization and publisher of documents pertaining to the computer industry.

  - Standard & Poor's - a large-scale data base containing extensive financial information and ratings of various institutions and their securities.

7. INFORMATION SCIENCE, INC. (INSCI)

- This company is primarily a vendor of applications software for the following:

  - Payroll.

  - Personnel.

- InSci has developed an RCS capability to provide personnel processing to medium-sized companies or large companies that choose not to maintain sensitive employee data in an internal data base.

- A joint venture has been announced between InSci and CDBC.

  - InSci is providing on-line personnel services.

- CDBC is providing batch payroll services.

- System-to-system transfer of data by magnetic tape between the two companies is featured.

- InSci has also packaged its personnel software on a minicomputer (Microdata) and, as a system integrator, is marketing standalone turnkey systems.

8. INTERNATIONAL BUSINESS MACHINES (IBM)

- IBM has emerged from the constraints placed upon it through an antitrust settlement and has subsequently made a number of organizational changes that will facilitate IBM's return to the computer service business.

- It would be difficult to describe IBM as a service conglomerate at this time, but the company has the resources in place to move in a variety of directions to provide more extensive services in the near future.

- In addition to its mainframe manufacturing business, IBM's success in the personal computer business is now well documented. (It is estimated that during 1984, approximately 13%, or $6.5 billion, of IBM's revenues will result from PC sales.) Coincident with its success, in personal computers, IBM has also done the following:

  - Established the National Distribution Division to facilitate the distribution of its products through product centers (company-owned retail stores), direct mail, and dealers (third-party retail stores). This represents a more direct move by IBM in recognition of the need to distribute certain hardware (personal computers and office equipment) and software on a consumer-oriented, retail basis.

  - Announced a joint venture and minority interest in ROLM, a vendor of communication equipment and internal telephone systems. This move places IBM in the position of potentially being able to provide:

  - . LANs.

  - . Intelligent workstations.

  - . Internal voice telephone systems.

- Formed a business unit to market software, and developed a marketing program to work closely with system integrators - particularly those that develop software for PCs and the low end of IBM's product line.

- Signed a cross-marketing agreement with Comshare wherein IBM salespeople will recommend Comshare's System W decision support system. In turn, Comshare's salesforce will recommend IBM hardware, when appropriate, while selling System W.

- Formed IBM Information Network, which currently provides users with the ability to interconnect various facilities through the IBM network for data communications purposes. This business unit, in effect, represents IBM's return to being an RCS vendor. It is conceivable that the IBM network may also be utilized as a vehicle for providing a broader array of remote computer services.

- Given IBM's success in the PC marketplace, its joint ventures and its interest in marketing software, the information network could well be the catalyst to establish IBM as a significant computer service conglomerate.

9. CONTINENTAL TELEPHONE CORPORATION (CONTEL)

- Contel is a communications company that evolved through the acquisition of numerous small, independent telephone companies throughout the U.S.

- During the past few years, Contel has directed its acquisition and joint venture program toward the computer industry. Although its acquisition program is not yet complete, Contel already could be considered a service conglomerate. However, the company has not yet chosen to promote itself as a computer service company.

- Contel's acquisitions and joint ventures include:

  - Scientific Time Sharing Company (STSC) - the primary asset consisting of an in-place network.

  - CADO Systems - a software developer and system integrator.

  - Network Analysis Corporation - a firm with expertise in developing communications networks and providing professional services in the communications area.

  - Executone - manufactures, installs, and maintains internal telephone systems.

  - Joint ventures and partial ownership in several cable TV companies and satellite data transmission ventures.

- Thus, Contel has assembled many of the components necessary to provide a wide array of computer services. It is anticipated that Contel will soon announce the acquisition of an RCS vendor that will be combined with existing acquired RCS capabilities.

VII RECOMMENDED STRATEGIES FOR RCS MANAGEMENT

- The final section of this report contains a series of recommendations for RCS vendors as they approach and plan business strategies for the latter half of the 1980s.

- These recommended strategies are based on:

  - Interviews with various types of RCS vendors and others.

  - The results of previous relevant surveys by INPUT.

  - Various trade publications.

  - Publications produced by various vendors, together with publications produced by various financial analysts familiar with the computer industry.

A. UNDERSTAND USER REQUIREMENTS AND EXPECTATIONS

- Apparently, RCS management still should give attention to the axiom that the management of any service organization must understand its clients' requirements.

- Exhibit V-1 in Chapter V contains the results of a survey that illustrates a wide disparity of views between RCS users and vendors.

- Based on the rapid changes in technology during the past 12-18 months, it is reasonable to assume the disparity between RCS vendors and users may remain as great if not greater than in the past.

- Few RCS vendors are disciplined in determining the needs and expectations of their users. Quite often the comments of salespeople or informal surveys dictate the content of new product offerings or product delivery methods.

  - This approach may be misleading, especially during a period of rapid technological change. The salesforce may not be perceptive or objective enough to be relied on.

  - Furthermore, users themselves may not be knowledgeable enough to adequately express their own needs.

- It is suggested that in determining user requirements, RCS users not be treated as a homogenous group. That is, variations in requirements will be found among users in the same market sector.

  - Variations in user needs will primarily vary by SIC code, but smaller firms frequently have needs different from those of large firms in the same business sector.

  - As mentioned earlier, it is crucial to select the appropriate market sector (SIC code) when planning future products and strategies. There is great variance in sector-by-sector forecasted growth, as shown in Exhibit VII-1. Although sector growth is not the only consideration in planning for the future, it is a key consideration.

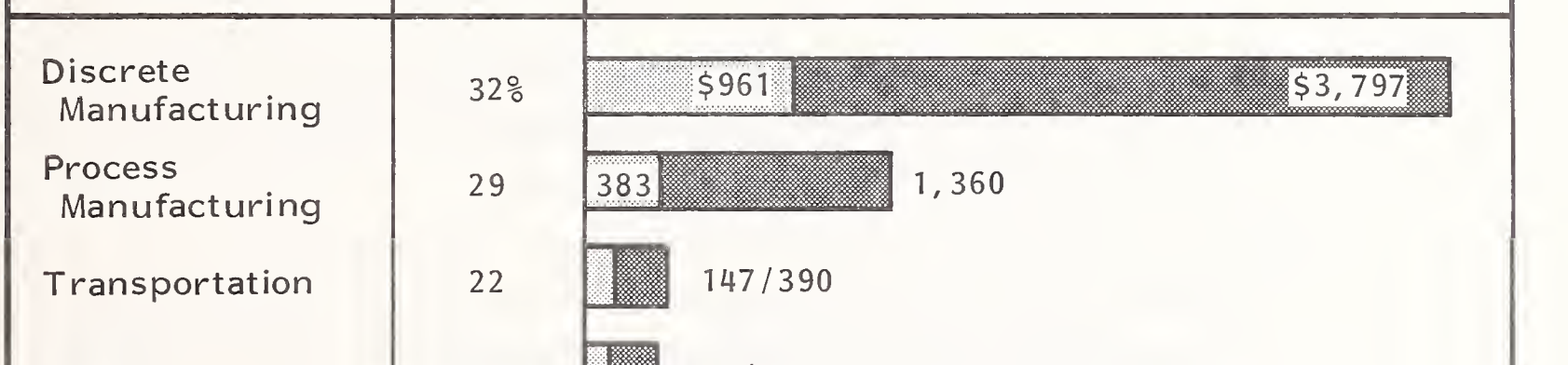
EXHIBIT VII-1

INTEGRATED SYSTEMS

MARKET FORECAST BY INDUSTRY SECTOR, 1982-1987

RCS

INDUSTRY SECTOR	AAGR 1982-1987 (Percent)	USER EXPENDITURES IN CURRENT DOLLARS ($ Millions)
Discrete Manufacturing	32%	$961 / $3,797
Process Manufacturing	29	383 / 1,360
Transportation	22	147/390
Utilities	23	120/333
Banking and Finance	30	478 / 1,751
Insurance	24	201/590
Medical	30	175/638
Education	19	74/176
Retail	30	222/819
Wholesale	29	231/809
Federal Government	21	66/170
State and Local Government	20	48/117
Services	33	299/1,253
Other	23	80/228



1982	$ 3,485 million
1987	$12,431 million

- Previously, the selection of an RCS vendor by a user company was heavily influenced by the user's data processing staff. Although this department's influence is still of significance, final decision making in RCS vendor selection has shifted to the end user. This shift has, in itself, dictated a new approach by RCS vendors in promoting and marketing their products.

  - The end user is interested in product results, not product technology.

  - The user is much more influenced by consumer-type advertising and promotional claims. This has been brought about, to a great degree, by the intense marketing of personal computers.

  - Although technology and terminology have changed, the end user is still heavily influenced by the same factors that have been prevalent during the last 10-15 years. These factors are:

    . Low cost.

    . Local control.

    . Local compute capability.

- Firms from outside the computer industry are now providing RCS-type services, forcing RCS vendors to face a new type of competitor (i.e., Dun & Bradstreet, McGraw-Hill).

  - These firms are used to dealing with businesses on a nontechnical basis. RCS vendors are going to have to adjust their marketing and sales approach to compete effectively.

  - Identifying user needs and expressing these needs in the user's term are the keys to effective competition with these new competitors for the RCS revenue dollar.

B. UTILIZE PC TECHNOLOGY TO DELIVER RCS

- PC technology has already affected RCS revenues and will continue to do so, as shown in Exhibit VII-2.

- It is recommended that RCS firms:

  - Use PCs in conjunction with RCS networks as a means of delivering a service, depending on user needs.

  - Utilize PCs as intelligent terminals in an RCS environment.

    . Bundle hardware into the overall RCS product.

    . Build hardware mark-up into the pricing of the service.

    . Sell PC software to the user for non-RCS (standalone) applications.

  - Capitalize on PC technology as a way of becoming a full-service vendor.

C. SELECT INDUSTRY-SPECIFIC VERSUS CROSS-INDUSTRY APPLICATIONS AND STRATEGIES

- As mentioned previously, certain cross-industry applications will continue to generate significant revenues for computer service companies, but these application areas are already well penetrated and will not show significant increases in RCS revenues. Thus, RCS growth will occur primarily through industry-specific applications.

EXHIBIT VII-2

PC/RCS AS A PERCENT OF TOTAL RCS REVENUES
($ Billions)

REVENUES	1983	1988
Non PC/RCS Revenues	$6.4	$14.4
PC/RCS Revenues	0.2	4.8
Total RCS Revenues	6.6	19.2
PC/RCS as a Percent of Total	3.0%	25.0%

- Based on these factors, it is recommended that RCS firms:
  - Preserve existing cross-industry revenues and profits but anticipate that they will erode over time.
  - Avoid entering cross-industry markets except perhaps though acquisition.
  - Focus market research efforts on:
    - Identifying new industry-specific market segments, considering revenue potential, forecasted growth, and competition.
    - Identifying additional services that are applicable to existing market segments, considering user requirements, current position/applications, and competition.

- Once an industry segment (or segments) is identified, specific user requirements and expectations can be determined.
  - User requirements should dictate technology; technology should not dictate user requirements.
  - The following new technologies for product delivery should be considered:
    - PCs.
    - Downloading software.
    - Distributed data processing.

- Given a specific industry segment, the broader the array of services available to users, the greater the chances of success.

  - Users are increasingly conditioned to expect full-service support from a single vendor.

  - Selling follow-on services to an existing client is easier and less expensive than selling the initial service to a new client.

- It is important that sales and sales support personnel become completely familiar with the practices of the industry to which they are selling.

  - The credibility (or lack thereof) of the sales and sales support personnel is transferred directly by the user to the product itself.

  - It is feasible and often desirable to hire sales and sales support personnel out of the industry being serviced. This adds to the vendor's credibility factor especially in the face of sales support personnel.

D. BECOME A FULL-SERVICE RCS VENDOR

- A position as a full service vendor enables an RCS company to enjoy a number of competitive advantages that are not perceived in the same way by users:

  - A user is inclined to deal with a service vendor that appears to have a sound understanding of its business.

  - Sales and sales support personnel can be trained to be more effective and thus more productive when focusing on a specific industry.

- Sales personnel have the potential to sell a variety of the following services to the same client:

  . Software.

  . RCS.

  . Professional services.

  . Hardware.

- There is a greater potential for repeat sales to the same user than to a new client.

- A strategy of industry specialization will facilitate the full service vendor approach.

  - A single firm can effectively organize itself into multiple business units and equip each unit to sell into an individual industry-specific market.

  - However, each business unit should be viewed and measured as a separate profit center sharing only the cost of corporate overhead functions.

- With current technology in place and with user expectations at a high level (heavily influenced by PC advertising), RCS vendors will want to consider redefining their businesses to take advantage of this new technology.

  - A basic breakout of the information service industry indicates four types of services (see Appendix A, Definitions). These are:

  - . Processing services.

  - . Software products.

  - . Professional services.

  - . Integrated systems.

- An RCS vendor must evaluate all of these services and be prepared to be involved in any or all of them.

- Successful RCS vendors must be willing to abandon previously held definitions of their businesses. Indeed, it is probable that successful service firms will, in the future, lose their identities as RCS firms, software firms, or professional service firms. Their identities will be as full-service vendors to specific industries. Delivery methods will become secondary.

  - That is, the successful computer service company will become either:

    - . A specialist, from a market point of view.

    - . A generalist, from a product delivery point of view.

E. OVERCOME EXISTING BIASES TOWARD NEW TECHNOLOGY

- RCS vendor companies are urged to adopt the attitude that technology is just the means to an end.

  - Basically, the user is not interested in technology.

- Technology will continue to change, and RCS firms will continually have to deal with the rapid obsolescence of technology.

- RCS companies should evaluate the following alternatives in selling products:
  - Retail stores.
  - Direct mail.
  - Manufacturers' representations.
  - Joint marketing agreements.
- They will also need to evaluate the following alternate ways to deliver products:
  - Integrated systems.
  - Downloading software.
  - Retail stores.
  - Mail order.

F. EMPHASIZE POST-SALES SUPPORT

- Industry specialization and the full-service vendor strategy require strong post-sales functions.
  - The user expects the vendor to exhibit industry expertise.

- The full-service vendor assumes certain responsibilities formerly assumed by the vendor; thus the vendor is no longer self-sufficient.

- Effective post-sales support can lead to the sale of additional services to existing clients.

- Certain post-sales support activities (professional services can result in a profit, thus offsetting other post-sales expenses.

G. CONSIDERING A JOINT VENTURE

- In the past, joint ventures among RCS companies achieved lackluster success, in most cases.

  - Mutual goals were not clearly defined.

  - The salesforces lost (or thought they would lose) commission income.

  - The market or technology changed, making the purpose of the joint venture obsolete.

- The current conditions affecting the market for remote computer services have stimulated renewed interest in joint ventures.

  - The variety of technologies that complement each other (centered around the personal computer) provide an opportunity for firms to form joint ventures that have a strong basis for success. For example:

    . A microcomputer hardware manufacturer may form a joint venture with a software developer to produce and sell integrated systems.

  - A software developer and an RCS company form a joint venture to provide the user with the alternative either of software to be run internally or of a service deliverable on an RCS basis.

  - Two RCS companies form a complementary marketing arrangement to provide a full-service capability to specific market sectors.

- A joint venture can be formed in a variety of ways:

  - Joint ownership of a newly established company.

  - Joint ownership of a company formed solely to sell and distribute the products/services of both companies.

  - A joint marketing agreement whereby no new legal entity is formed.

- Those firms with large informational data bases but without RCS expertise are prime candidates for joint ventures with RCS firms.

- The primary advantage of a joint venture is the relatively brief time required to achieve the desired goals, as opposed to the length of time required for internal development.

- The primary disadvantages of a joint venture are that neither party has full control, and differing corporate goals can easily impede or prevent the venture from being successful.

- It is recommended that the RCS company seriously consider joint venture opportunities as a means of expanding services to existing market sectors or as a means of penetrating new markets.

H. IMPLEMENT CHANGE

- Much of this report focuses on the degree of change that has already taken place in the RCS marketplace and on the need to change for continued success in the future. This section examines the factors that influence how quickly a company must change and identifies certain factors that can adversely affect the desired rate of change.

I. WHAT STRATEGIES NEED TO BE CHANGED?

- There are several strategies that should be adopted and implemented as quickly as possible. In fact, several of these strategies are so vital for success that many large RCS vendors (some identified in previous chapters) have already established these strategies. RCS vendors should:

  - Replace dedicated, single-purpose terminals with intelligent, multi-purpose terminals utilizing microcomputer technology.

  - Sell an array of general purpose PC software so that the RCS terminals can also be used for non-RCS functions on a standalone basis.

  - Supplement (or replace) utility-type timesharing services with value-added services, primarily those related to accessing large-scale informational data bases.

  - Replace analytical remote computer services with transactional services. In particular, those analytical services that do not depend on access to large data bases can be performed more effectively through the use of personal computers.

- Other changes are equally important for the RCS vendor, but implementing the changes is considered somewhat less urgent than with the factors listed above. These additional changes are:

- Developing and marketing mainframe software to complement analagous remote computer services.

- Providing the ability for users to download software from mainframe to PC (intelligent terminals).

- Supplementing (or replacing) cross-industry applications with industry-specific applications.

  . This approach will lead to a perception of the vendor as a full-service vendor.

  . Furthermore, the RCS vendor will be less vulnerable to integrated systems based on PCs.

Adjusting sales and marketing strategies to take advantage of the user's perceptions of computer services that have been created by PC promotional campaigns. Vendors should:

. Emphasize results, not products.

. Orient salespeople toward the end user, not the data processing manager.

. Promote the importance and availability of alternative means of providing services such as:

  - RCS.

  - Mainframe software.

  - PCs.

- Provide access to a large-scale informational data base as a remote computer service that is complementary to "bread-and-butter" transactional services.

  . This will enhance the full service vendor image.

  . This will also reduce the firm's vulnerability of revenue loss to PCs.

2. HOW QUICKLY CAN AN RCS VENDOR CHANGE STRATEGIES?

- Once a strategy or a series of strategies is selected, the timing of the implementation of the selected strategies becomes important. The previous section outlined certain strategies and categorized them into those that should be implemented immediately and those that can be implemented during the course of the next 12-24 months. This section examines those factors that might be an impediment to the timing of the implementation of these strategies.

- The biggest impediment to implementing any change is the corporate mind set.

  - In spite of the RCS industry being characterized by rapid innovation, a company's employees do not always accept change readily.

  - This inability to adapt to change is most prevalent among the sales-people in field sales.

    . These individuals are usually organizationally and geographically remote from senior management.

  - . Salespeople view all changes from the perspective of their impact on commissions. The implementation of any strategy must take into consideration:

    - Sales commissions.

    - Sales territory revenue potential.

    - The creation of competitive salesforces.

- The availability of personnel is another factor tht affects implementation of new strategies.

  - Certain technical personnel are perenially in short supply, and shortages of such personnel may delay implementation schedules or make changes more costly. Critical personnel are:

    . Data base programmers.

    . Communication system programmers.

    . Experienced sales personnel.

    . Experienced sales support personnel.

- Most importantly, it is imperative for senior management to inform and educate the company's employees concerning new strategies and implementation plans.

  - People seem to inherently resist change. However, if informed and educated about their responsibilities, most people will support corporate objectives.

- Conversely, if uninformed, people will be lukewarm (at best) in their support, and the best-laid corporate strategies can be seriously jeopardized.

APPENDIX A: DEFINITIONS

- INFORMATION SERVICES - Brief definitions are given here; more detailed definitions are included below.

- PROCESSING SERVICES - The provision of data processing functions using vendor computers or the provision of data base access where vendor computers perform a major role in processing or conveying data.

- SOFTWARE PRODUCTS - Packaged (as opposed to custom-written) software, both systems and applications.

- PROFESSIONAL SERVICES - Services, including custom code, writing, training, and consulting, which assist users in operating their own computers.

- INTEGRATED SYSTEMS - Hardware and software bundled together, marketed and sold as a packaged solution to a specific application-oriented data processing requirement.

A. REVENUE

- NONCAPTIVE INFORMATION SERVICES REVENUE - Revenue received for information services provided within the U.S. from users who are not part of the same parent corporation as the vendor.

- CAPTIVE INFORMATION SERVICES REVENUE - Revenue received from users who are part of the same parent corporation as the vendors.

- OTHER REVENUE - Revenue derived from lines of business other than those defined as information services above.

B. SERVICE MODES

- PROCESSING SERVICES - Remote computing services, batch services, and processing facilities management.

  - REMOTE COMPUTING SERVICES (RCS) - Provision of data processing to a user by means of terminals at the user's site(s) connected by a data communications network to the vendor's central computer. There are five submodes of RCS:

    - INTERACTIVE (timesharing) - Characterized by the interaction of the user with the system, primarily for problem-solving timesharing but also for data entry and transaction processing: the user is on-line to the program/files.

    - REMOTE BATCH - Where the user hands over control of a job to the vendor's computer, which schedules job execution according to priorities and resource requirements.

    - DATA BASE - Characterized by the retrieval and processing of information from a vendor-provided, computerized data base. The data base may be owned by the vendor or a third party.

- USER SITE HARDWARE SERVICES (USHS) - These offerings provided by RCS vendors place programmable hardware on the user's site (rather than in the EDP center). USHS offers:

  - Access to a communications network.

  - Access through the network, as the primary use of the hardware, to the RCS vendor's large computers.

  - Significant software as part of the service.

- BATCH SERVICES - This includes data processing performed at vendors' sites of user programs and/or data that are physically transported (as opposed to electronically by telecommunication media) to and/or from those sites. Data entry and data output services, such as keypunching and computer output microfilm processing, are also included. Batch services include those expenditures by users who take their data to a vendor site that has a terminal connected to a remote computer for the actual processing.

- PROCESSING FACILITIES MANAGEMENT (PFM) (also referred to as "resource management" or "systems management") - The management of all or a major part of a user's data processing functions under a long-term contract (more than one year). This would include both remote computing and batch services. To qualify as PFM, the contractor must directly plan, control, operate, and own the facility provided to the user, either on-site, through communications lines, or in a mixed mode.

- VALUE-ADDED NETWORKS - A network for remote communications of data providing enhancements over public communications media including packet switching, intelligent routing, protocol conversions, and so on. Examples include Tymnet, Telenet, etc.

- Processing services are further differentiated as follows:

  - CROSS INDUSTRY SERVICES - The processing of applications that are targeted to specific user departments (e.g., finance, personnel, sales) but cut across industry lines. Most general ledger, accounts receivable, payroll, and personnel applications fall into this category. Function-specific data base services where the vendor supplies the data base and control access to it (although it may be owned by a third party) are included in this category. General-purpose tools such as financial planning systems, linear regression packages, and other statistical routines are also included. However, when the application, tool, or data base is designed for specific industry use, then the service is industry-specific.

  - INDUSTRY-SPECIFIC SERVICES - Provide processing for particular functions or problems unique to an industry or industry group. The software is provided by the vendor either as a complete package or as an applications tool that the user employs to produce a unique solution. Specialty applications can be either business or scientific in orientation. Industry-specific data base services, where the vendor supplies the data base and controls access to it (although it may be owned by a third party), are also included under this category. Examples of industry-specialty applications are seismic data processing, numerically controlled machine tool software development, and demand deposit accounting.

  - UTILITY SERVICES - Where the vendor provides access to a computer and/or communications network with basic software that enables users to run their large-scale applications or to develop their own problem solutions or processing systems. These basic tools include terminal-handling software, sorts, language compilers, data base management systems, information retrieval software, scientific library routines, and other systems software.

- SOFTWARE PRODUCTS - This category includes users' purchases of applications and system packages for use on in-house computer systems. Included are lease and purchase revenues, as well as fees for work performed by the vendor to implement and maintain the package at the users' sites. Fees for work performed by organizations other than the package vendor or for customization beyond the basic requirements of installation and maintenance are counted in professional services. There are several subcategories of software products. These are:

  - APPLICATIONS PRODUCTS - Software that performs processing to service user functions. They consist of:

    . CROSS-INDUSTRY PRODUCTS - Used in multiple user industry sectors. Examples are payroll, inventory control, and financial planning.

    . INDUSTRY-SPECIFIC PRODUCTS - Used in a specific industry sector such as banking and finance, transportation, or discrete manufacturing. Examples are demand deposit accounting and airline scheduling.

  - SYSTEMS PRODUCTS - Software that enables the computer/ communications system to perform basic functions. They consist of:

    . SYSTEMS CONTROL PRODUCTS - Function during applications program execution to manage the computer system resource. Examples include operating systems, communication monitors, emulators, and spoolers.

    . DATA CENTER MANAGEMENT PRODUCTS - Used by oepra-tions personnel to manage the computer system resources and personnel more effectively. Examples include performance

measurement, job accounting, computer operations scheduling, and utilities.

- APPLICATION DEVELOPMENT PRODUCTS - Used to prepare applications for execution by assisting in designing, programming, testing, and related functions. Examples include languages, sorts, productivity aids, data dictionaries, data base management systems, report writers, project control systems, and retrieval systems.

- PROFESSIONAL SERVICES - Made up of services in the following categories:

  - SOFTWARE DEVELOPMENT - Includes system design, contract programming, and body shopping.

  - EDUCATION SERVICES - EDP products and/or services related to businesses, not individuals.

  - CONSULTING SERVICES - EDP management consulting and feasibility studies, for example.

  - PROFESSIONAL SERVICES FACILITIES MANAGEMENT (PSFM) - The counterpart to processing facilities management, except that in this case the computers are owned by the client, not the vendor; the vendor provides people to operate and manage the client facility.

- INTEGRATED SYSTEMS (also known as turnkey systems) - A bundling of systems and applications software with hardware - packaged, marketed, and sold as a single entity. The value added by the vendor is primarily in the software. Most CAD/CAM systems and many small business systems are integrated systems. This does not include specialized hardware systems such as word processors and cash registers.

- Integrated systems revenue in this report is divided into two categories: CAD/CAM and others.

  - CAD/CAM - Integrated systems that include hardware and software integrated for drafting, plotting, graphics, simulation, or design work in mechanical, architectural, electronics, or other engineering disciplines. They also need not include integration and control of manufacturing operations related to the original design. Process control systems are specifically excluded.

  - Other integrated systems are:

    . INDUSTRY-SPECIFIC SYSTEMS - Systems such as seismic processing systems, automobile dealer parts inventory, or bank trust processing systems, that serve a specific function for a given industry sector.

    . CROSS-INDUSTRY SYSTEMS - Systems such as financial planning systems, payroll systems, or personnel management systems, that provide a specific function applicable to a wide range of industry sectors.

- Revenue includes hardware, software, and support functions.

C. OTHER CONSIDERATIONS

- When questions arise about the proper place to count certain user expenditures, INPUT addresses them from the user viewpoint. Expenditures are then categorized according to the answer to what the users perceive they are buying.

- The standard industial classification (SIC) codes are used to define the economic activity contained in generic sectors such as Process Manufacturing, Insurance, Transportation, etc.

APPENDIX B: RELATED INPUT REPORTS

- The Merging of Hardware, Software, and Services, May 1981.
- Information Services in 1990, September 1981.
- New Processing Opportunities in Banking, July 1982.
- Market Opportunities in Network Services, December 1982.
- U.S. Information Services Markets, 1982-1987 Volume I: Processing Services and Integrated Systems, December 1982.
- Personal Computer Opportunities for Remote Computing Services Vendors, June 1983.
- Intercompany Electronic Data Exchange, August 1983.
- Seventeenth Annual Survey of the Computer Services Industry, August 1983.
- Information Services Pricing Trends and Techniques Volume I: Processing Services and Integrated Systems, September 1983.
- Local Area Networks: Directions and Opportunities, December 1983.

- U.S. Information Services Markets, 1983-1988 Volume I: Industry-Specific Markets, December 1983.

- U.S. Information Services Markets, 1983-1988 Volume II: Cross-Industry Markets, December 1983.

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